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Cont.
monitoring a headroom of regenerative braking available and
dissipating power through a thermal resistor to make more headroom available for
regenerative braking;

electrically regeneratively braking said first wheeled axle up to a first
level; and

frictionally braking said second wheeled axle when a braking
requirement of said vehicle is above said first level.

REMARKS

In the above-noted Office Action, claims 1-15 were rejected under 35 U.S.C. 112. Claims 1-4 were rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent 5,378,053 to Patient, et al. Claim 5 was rejected under 35 U.S.C. 103 as being unpatentable over Patient, et al. in view of U.S. Patent 5,589,743 to King. Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Patient et al. in view of King, and further in view of Wong et al., U.S. Patent 5,469,046. Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,627,438 to Barrett in view of Japanese Patent JP-11275708 (using U.S. Patent 6,120,115 to Manabe as an English equivalent). The remaining claims were rejected under 35 U.S.C. by various combinations of the aforementioned patents, or in combination with one or more of the aforementioned patents with the addition of Japanese Patent JP-07135701.

With this submission Applicants cancel claims 5, 6, 14 and 15. Claims 1, 4, 7 and 12 are amended. Reexamination and reconsideration of the nonallowed claims are respectfully requested.

The Examiner has objected to the specification and to the Abstract. Applicants wish to thank the Examiner for pointing out errors and appropriate corrections have been made. The Examiner also advised of certain grammatical errors in claims 1, 4, 5, 7 and 12, which claims are herein amended; claim 5 has been canceled.

With regard to the rejection of claims 1-4 under 35 U.S.C. 102(b) as being anticipated by Patient, et al., Applicants respectfully submit that Patient does not teach, obviate or anticipate Applicants' invention, as defined in originally submitted and/or amended claims 1-4. Nowhere does Patient et al. teach an electric vehicle wherein the first axle is exclusively only electrically driven and wherein the first

wheeled axle exclusively has only electric regenerative brakes. In sharp contrast, Patient et al. discloses a vehicle which has friction and electric brakes. Therefore, the Patient et al. vehicle inherently has an expense which Applicants' vehicle is not burdened by.

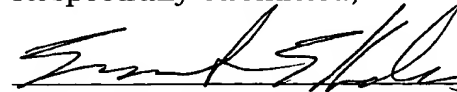
Claim 4 has been modified to include the limitations of previous dependent claims 5 and 6. The Examiner rejected claim 6 as being unpatentable over Patient et al. in view of King and further in view of Wong et al. Applicants respectfully submit that Wong et al. is not analogous to Applicants' invention. Wong et al. relates to a transformerless low voltage switching power supply, which in column 1, relates to power supplies found in certain TV receivers as described in lines 9-10. In sharp contrast, Applicants' disclose using a thermal resistor which dissipates the heat associated with a braking of the vehicle. The energy involved in thermal dissipation for vehicle braking is several orders of magnitude greater than thermal dissipation in a low voltage power supply. Accordingly, Applicants respectfully submit that Wong et al. is not analogous to Applicants' invention.

Claims 7 and 11 have been rejected under 35 U.S.C. 103 as being unpatentable based upon Barrett (US 5,627,438 in view of Japanese JP-11275708 (using Manabe, US 6,120,115 as an English equivalent)). Applicants respectfully submit that rows 10 and 12 of Manabe are not exclusively only electrically braked, but also have friction brakes noted as items 32 and 34. Accordingly, combinations relying upon Manabe fail to teach or disclose or make obvious Applicants' invention.

Applicants' response to the rejection of the remaining claims is inherent to Applicants' aforementioned responses. Therefore, in the interest of the Examiner's valuable time, such argument is not further repeated.

Applicants have shown that the Examiner's rejections are respectfully traversed. As the application is otherwise in condition for allowance, such action is respectfully requested.

Respectfully submitted,



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CERTIFICATE OF MAILING (CFR 1.8)

I hereby certify that the this AMENDMENT is being deposited with the United States Postal Service as postage prepaid first-class mail in an envelope addressed to Assistant Commissioner For Patents, Washington, D.C. 20231, on this 1st day of October, 2002.

A handwritten signature in dark ink, appearing to read 'Donna Crumit', is written over a horizontal line.

Donna Crumit

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

On page 4, the first paragraph starting at line 1 and ending at line 13 is amended to read as follows:

-- The vehicle shown in Figure 1 exclusively has only electric regenerative brakes on the first axle 10. The second axle 22 exclusively has only hydraulic powered friction brakes 26. The first wheeled axle 10 may serve as the front or the rear axle of the vehicle 7. When serving as the rear axle of the vehicle, the configuration of Figure 1 provides an additional advantage of placing more weight on the rear axle. Maximum braking capacity is a direct function of the weight on a given axle. Therefore more weight on the rear axle enhances the regenerative braking capabilities. The motor generator 14 is electrically connected with a battery 28, which will be located to take advantage of the space envelope available in the vehicle, as well as the weight distribution for the axles of the vehicle. -

IN THE ABSTRACT

The abstract is amended to read as follows:

An electric or hybrid electric vehicle 7 (7, 17, 27) is provided which includes a first wheeled axle 10 that is electrically driven and has only electric regenerative brakes. The vehicle 7 also includes a second wheeled axle (22,32,44) that has only friction brakes 26. The cost and complexity of friction brakes on the second axle (22,32,44) can be avoided.

IN THE CLAIMS

Claims 5, 6, 14 and 15 are canceled.

Claims 1, 4, 7, and 12 are amended as follows:

1. An electric vehicle comprising:
a first wheeled axle exclusively only electrically driven, said first wheeled axle exclusively having ~~with~~ only electric regenerative brakes;

a second wheeled axle, which is non-driven, and said second wheeled axle exclusively having ~~with~~ only friction brakes.

4. A method of braking an electric vehicle which has a first wheeled axle, exclusively electrically driven, said first wheeled axle exclusively having only ~~with~~ electric regenerative brakes, and a second wheeled axle which is non-driven, said second wheeled axle exclusively having ~~and with~~ only friction brakes, said method comprising:

sensing a headroom available for regeneratively braking said vehicle;
and dissipating power through a thermal resistor to provide additional regenerative braking for said vehicle;

electrically regeneratively braking said first axle to a first level; and
frictionally braking said second axle to provide a braking force upon said vehicle greater than a braking force provided by said electric regenerative ~~brakes~~ ~~braking~~.

7. A vehicle comprising:

a first wheeled axle electrically driven, said first wheeled axle exclusively having ~~with~~ only electric regenerative brakes; and

a second wheeled axle driven by an internal combustion engine, said second wheeled axle exclusively having ~~with~~ only friction brakes.

12. A method of braking a vehicle having a first wheeled axle exclusively electrically driven, said first wheeled axle exclusively having ~~with~~ only electric regenerative brakes, and said vehicle having a second wheeled axle driven by an internal combustion engine, said second wheeled axle exclusively having only ~~with~~ friction brakes, said method comprising:

monitoring a headroom of regenerative braking available and
dissipating power through a thermal resistor to make more headroom available for regenerative braking;

electrically regeneratively braking said first wheeled axle up to a first level; and

frictionally braking said second wheeled axle when said braking requirement of said vehicle is above said first level.